Source Water Assessment Program (SWAP) Report For Sweet Brook Care Centers, Inc.

What is SWAP?

The Source Water Assessment Program (SWAP), established under the federal Safe Drinking Water Act, requires every state to:

? Inventory land uses within the recharge areas of all public water supply sources;

? Assess the susceptibility of drinking water sources to contamination from these land uses; and

? Publicize the results to provide support for improved protection.

SWAP and Water Quality

Susceptibility of a drinking water source does *not* imply poor water quality. Actual water quality is best reflected by the results of regular water tests.

Water suppliers protect drinking water by monitoring for more than 100 chemicals, treating water supplies, and using source protection measures to ensure that safe water is delivered to the tap.

Prepared by the Massachusetts Department of Environmental Protection, Bureau of Resource Protection, Drinking Water Program

Date Prepared: December 5, 2001

Table 1: Public Water System (PWS) Information

PWS Name	**Sweet Brook Care Centers, Inc.**
PWS Address	**1561 Cold Spring Road**
City/Town	**Williamstown, Massachusetts**
PWS ID Number	**1341003**
Local Contact	**Guy Lewis**
Phone Number	**413-458-8127**

Well Name	*Source ID#*	*Zone I (in feet)*	*IWPA (in feet)*	*Source Susceptibility*
Well #1	1341003-01G	175	470	High
Well #2	1341003-02G	288	798	High
Well #4	1341003-04G	316	1008	Moderate
Well #5	1341003-05G	319	1043	Moderate

Introduction

We are all concerned about the quality of the water we drink. Drinking water wells may be threatened by many potential sources of contamination, including septic systems, road salting, and improper disposal of hazardous materials. Citizens and local officials can work together to better protect these drinking water sources.

Purpose of this report:
This report is a planning tool to support local and state efforts to improve water supply protection. By identifying land uses within water supply protection areas that may be potential sources of contamination the assessment helps focus protection efforts on appropriate best management practices (BMPs) and drinking water source protection measures. Department of Environmental Protection (DEP) staff are available to provide information about funding and other resources that may be available to your community.

This report includes:
1. Description of the Water System
2. Discussion of Land Uses within Protection Areas
3. Recommendations for Protection
4. Attachments, including a Map of the Protection Areas

1. Description of the Water System

The Sweet Brook Care Centers, Inc., located in Williamstown, consists of two facilities serving a combined population of about 300 residents and staff. The rural community system is served by four wells, and utilizes the town's sanitary sewer line for wastewater disposal. The Zone I is the protected area immediately surrounding the wellhead while the IWPA provides an interim protection area for a water supply well when the actual recharge area has not been delineated. The actual recharge area to the well may be

What is a Protection Area?

A well's water supply protection area is the land around the well where protection activities should be focused. Each well has a Zone I protective radius and an Interim Wellhead Protection Area (IWPA).

- **The Zone I** is the area that should be owned or controlled by **the** water supplier and limited to water supply activities.
- **The IWPA** is the larger area that is likely to contribute water to the well.

In many instances the IWPA does not include the entire land area that could contribute water to the well. Therefore, the well may be susceptible to contamination from activities outside of the IWPA that are not identified in this report.

What is Susceptibility?

Susceptibility is a measure of a well's potential to become contaminated due to land uses and activities within the Zone I and Interim Wellhead Protection Area (IWPA).

significantly larger or smaller than the IWPA. The Zone I and IWPA radii for wells #1 and 2 have been calculated from available metered data. Well #1 is a 175-foot deep well with a Zone I radius of 175 feet and an IWPA radius of 470 feet. Well #2 is a 288-foot deep well with a Zone I radius of 288 feet and an IWPA radius of 798 feet. These two wells are manifolded together, used as stand-by wells, and are tested regularly to remain active and available. Wells #4 and 5 are manifolded just after well 4. Well #4 is an 8-inch diameter, 590-foot deep well with an approved pumping rate of 19 gpm; the Zone I and IWPA radii are 316 feet and 1008 feet, respectively. Well #5 is a 6-inch diameter, 400-foot deep well with an approved pumping rate of 20 gpm; the Zone I and IWPA radii are 319 feet and 1043 feet, respectively. Wells 4 and 5 were tested and approved under the DEP New Source Approval process and are therefore in compliance with the Zone I restrictions. Well #3 (03G) is an emergency source used only for fire protection and is not addressed in this report.

The mapping by USGS describes the bedrock in this are as phyllite and schist with a thin layer of till over bedrock. The wells utilize the bedrock aquifer and there is no evidence of a confining, protective clay layer in the immediate vicinity of wells 4 and 5. Review of the driller's log indicates the following: well #4 was drilled into limestone bedrock with one foot of till on the surface; well #5 was drilled into limestone bedrock with 17 feet of overburden described as sandy hardpan and gravel. Wells located in these geological conditions are considered to have a high vulnerability to contamination due to the absence of hydrogeologic barriers that can prevent contaminant migration from the surface. Wells utilizing aquifers within a protective clay barrier are considered less vulnerable. Reportedly, wells 1 and 2 are located in an area with clay overburden; however, this information could not be verified specifically for these well locations.

Although the facility utilizes a water softener, there is no other treatment of the water. For current information on water quality monitoring results, please contact the Public Water System contact person listed above in Table 1 for a copy of the most recent Consumer Confidence Report. Please refer to the attached map of the Zone I and IWPA and Table 1 for additional information regarding the location of the wells and activities within the protection areas.

2. Discussion of Land Uses in the Protection Areas

There are few activities within the drinking water supply protection areas that are potential sources of contamination.

Key issues include:

1. **Nonconforming uses in Zone I;**
2. **Underground Storage Tank;**

Table 2: Table of Activities within the Water Supply Protection Areas

Potential Contaminant Sources	Zone I	IWPA	Threat	Comments
Fuel Storage - Below Ground (UST)	None	Wells 1, 2 & 4	High	New 10,000 gallon heat oil tank with containment and monitoring
Parking lot & roads	Wells 1 & 2	All Wells	Moderate	Restrict fertilizer, pesticides, and road salt use
Electrical Transformers	Well 2	Wells 1, 2 & 4	Moderate	Request information regarding PCB in MODF change from your electric company
Horse and Dairy cow pastures	None	All Wells	Moderate	Use BMPs for management
Recreational Activities	None	Well 5	Low	Athletic fields and passive recreation
Nursing Home	Wells 1 & 2	All Wells	Low	Nonconforming Zone I (Wells 1 & 2)

*** -For more information on Contaminants of Concern associated with individual facility types and land uses please see the SWAP Draft Land Use / Associated Contaminants Matrix on DEP's website - www.state.ma.us/dep/brp/dws/.**

3. **Horse and Dairy cow pastures; and**
4. **Electrical Transformers.**

The overall ranking of susceptibility to contamination for wells 1 and 2 is high, based on the numerous land uses and activities in the Zone I. and IWPA, as seen in Table 2. The ranking of well 5 is moderate due to moderate threat activity in the Zone I of the wells and few threats within the IWPAs.

1. Nonconforming uses in Zone I – Currently, the water supplier does not own or control the entire Zone I area for wells 1 and 2. Please note that systems not meeting DEP Zone I requirements for ownership or control, must get DEP approval and address Zone I ownership prior to increasing water use or modifying systems. Structures, parking lots, and State Route 7 are all found within the Zone I of these two wells.

Recommendations:

- ✓ Control access to the wellhead area and make every effort to acquire Zone I control or ownership, as practical.
- ✓ Use Best Management Practices for handling treatment chemicals and vehicles used to access the area. Do not use or store pesticides, fertilizers or road salt within the Zone I.
- ✓ Prepare an emergency response plan for responding to an accidental release.
- ✓ Do not conduct any additional activities within the Zone I. Contact MA DEP prior to conducting any activities within Zone I.

2. Underground Storage Tank (UST) – There is a UST located between the parking lot and the northern-most building, with a capacity of 10,000 gallons of fuel oil. The UST is relatively new with containment and a monitoring system. If managed improperly, USTs can be a potential source of contamination due to leaks or spills of the chemicals they store.

Recommendations:

- ✓ All USTs in close proximity to the water supply should be closely monitored especially during deliveries.
- ✓ Any upgrades and modification in the future must meet current construction standards and be done consistent with Massachusetts's plumbing, building, and fire code requirements. Consult with the local fire department for any additional local code requirements regarding USTs.

3. Horse and Dairy Cow Pastures -- There are livestock activities in and adjacent to the IWPAs of the wells. There is a pasture for pleasure horses within the IWPA for wells 4 and 5, and a commercial dairy farm pasture for grazing within the IWPA for wells 1 and 2. Animal wastes, if improperly managed, could potentially cause contamination of the water supply.

Recommendations:

- ✓ Attempt to obtain an agreement from the commercial farm owner/operator that they will:
  - o Follow all applicable UMASS recommendations on Integrated Pest Management.
  - o Become certified in UMASS/Natural Resource Conservation Service Nutrient Management Certification program.
  - o Obtain and follow a Farm Plan through Natural Resource Conservation Service. Alternatively, complete and follow a plan developed through the publication *On Farm Strategies to Protect Water Quality: An Assessment and Planning Tool for Best Management Practices.*

Information on funding and other resources for agricultural

Glossary

Zone I: The area closest to a well; a 100 to 400 foot radius proportional to the well's pumping rate. To determine your Zone I radius, refer to the attached map.

IWPA: A 400 foot to ½ mile radius around a public water supply well proportional to its pumping rate; the area DEP recommends for protection in the absence of a defined Zone II. To determine IWPA radius, refer to the attached map.

Zone II: The primary recharge area defined by a hydrogeologic study.

Aquifer: An underground water-bearing layer of permeable material that will yield water in a usable quantity to a well.

Hydrogeologic Barrier: An underground layer of impermeable material that resists penetration by water.

Recharge Area: The surface area that contributes water to a well.

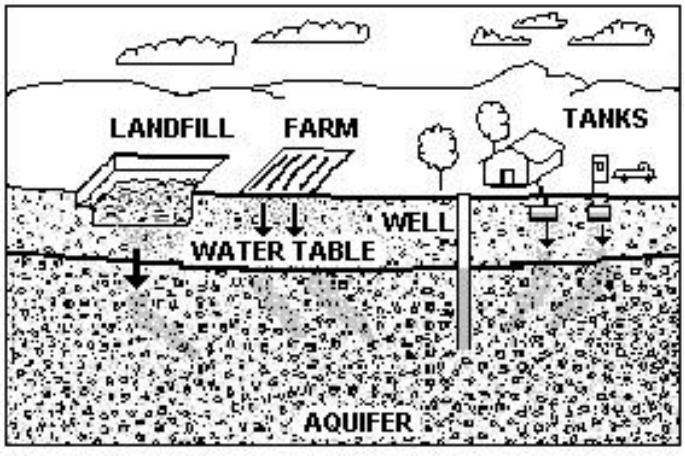

Figure 1: Example of how a well could become contaminated by different land uses and activities.

For More Information:

Contact Catherine Skiba in DEP's Western Region Office at (413) 755-2119 for more information and for assistance in improving current protection measures.

More information relating to drinking water and source protection is available on the Drinking Water Program web site at: www.state.ma.us/dep/brp/dws/

Additional Documents:

To help with source protection efforts, more information is available by request or online at www.state.ma.us/dep/brp/dws, including:

1. Water Supply Protection Guidance Materials such as model regulations, Best Management Practice information, and general water supply protection information.
2. MA DEP SWAP Strategy
3. Land Use Pollution Potential Matrix
4. Draft Land/Associated Contaminants Matrix

Copies of this assessment have been made available to the public water supplier, town boards, and the local media.

management is available through the Massachusetts Department of Food and Agriculture at (617) 626-1700 or http://www.massdfa.org/bureaus.htm.

4. Electrical Transformers – Electrical transformers contain Mineral Oil Dielectric Fluids (MODF). Although the use of PCBs is banned in new transformers, historically, PCBs were used in some transformers. If the transformers have not been changed since 1980, they may still contain PCBs.

Recommendations:

- ✓ Contact the local utility to determine if the transformers contain PCBs. If PCBs are present, urge immediate replacement of the oil.
- ✓ Keep the area near the transformers free of tree limbs that could endanger the transformer in a storm.

Other activities noted during the site visit were athletic fields and the use of trails for passive recreation. These activities pose minimal threat to the water supply provided no chemical fertilizers or pesticides are used in the immediate vicinity of the wells. Continue communications with the school and monitor recreational activities as necessary.

3. Protection Recommendations

Implementing protection measures and best management practices (BMPs) will reduce the Sweet Brook Care Centers' susceptibility to contamination. Sweet Brook Care Centers are commended for utilizing the town's sewer system, using propane for backup fuel sources, and having a well protected main water source. Sweet Brook Care Centers should review and adopt the key recommendations above and the following:

Priority Recommendations:

- V Conduct regular inspections of the Zone I. Look for illegal dumping, evidence of vandalism, etc.

Zone I:

- V Keep non-water supply activities out of the Zone I.
- V Do not conduct any non-water supply activities within the Zone I to comply with DEP's Zone I requirements.
- V Continue regular monitoring of back-up wells.
- V Control public access to the wells: lock facilities, gate access roads, and post signs at facility entrance and parking areas.
- V If the Town and/or Sweet Brook Care Centers intend to continue utilizing the structures in the Zone I, use BMPs and restrict activities that could pose a threat to the water supply.
- V If it's not feasible to purchase privately owned land within the Zone I at this time, consider a conservation restriction that would prohibit potentially threatening activities or a right of first refusal to purchase the property.
- V Maintain road and parking lot drainage in the Zone I away from well.
- V Do not use or store pesticides, fertilizers or road salt within the Zone I.

Training and Education:

- V Train staff on proper hazardous material use, disposal, emergency response, and best management practices; include custodial staff, groundskeepers, certified operator, and food preparation staff. Post labels as appropriate on raw materials and hazardous waste.
- V Post drinking water protection area signs at key visibility locations.
- V Work with your community to ensure that stormwater runoff is directed away from the well and is treated according to DEP guidance.

Facilities Management:

- V Monitor all oil deliveries for accidental spills by overfill.
- V Implement Best Management Practices (BMPs) for the use of fertilizer, herbicides and pesticides on facility property. Do

not use fertilizer, herbicides or pesticides in the Zone I.

- Protective collars around wellheads should slope away from the well, and the well casing should extend above ground.
- For utility transformers that may contain PCBs, contact the utility to determine if PCBs have been replaced. If PCBs are present, urge their immediate replacement. Keep the area near the transformer free of tree limbs that could endanger the transformer in a storm. Transformers that were installed before 1980 may contain PCBs.
- The facility is currently not registered as a generator of hazardous waste or waste oil. Review enclosed document "A Summary of Requirements for Small Quantity Generators of Hazardous Waste" to determine your status and regulatory requirements, if any.

Planning:

- Work with local officials in Williamstown to include Sweet Brook Care Centers' IWPAs in Aquifer Protection District Bylaws and to assist you in improving protection.
- Have a plan to address short-term water shortages and long-term water demands. Keep the phone number of a bottled water company readily available.
- Supplement the SWAP assessment with additional local information and incorporate it into water supply educational efforts. Use a land use inventory to assist in setting priorities, focusing inspections, and creating educational activities.

Agricultural:

- Encourage commercial farmers in the IWPA to seek assistance from the Natural Resource Conservation Service (NRCS) in addressing soil nutrient and manure management issues. If they do not have a farm plan, recommend the plan developed through the publication *On Farm Strategies to Protect Water Quality: An Assessment and Planning Tool for Best Management Practices* Plan through the Natural Resource Conservation Service.

Funding:

The Department's Wellhead Protection Grant Program provides funds to assist public water suppliers in addressing Wellhead protection through local projects. Protection recommendations discussed in this document may be eligible for funding under the "Wellhead Protection Grant Program". For additional information, please refer to the attached program fact sheet. Please note: each program year the Department posts a new Request for Response application package for the Grant program (RFR). On or about May 1 the new RFR is available and the application is due back on or about June 31. Other funding opportunities are described in "Grant and Loan Programs: Opportunities for Watershed Protection, Planning and Implementation" at http://www.state.ma.us/dep/brp/mf/files/glprgm.pdf.

These recommendations are only part of your ongoing local drinking water source protection. Citizens and community officials should use this SWAP report to spur discussion of local drinking water protection measures.

4. Attachments

- Map of the Public Water Supply (PWS) Protection Area
- Recommended Source Protection Measures Fact Sheet
- Pesticide Use Fact Sheet
- Manure Management Fact Sheet
- Wellhead Protection Grant Program Fact Sheet
- Source Protection Sign Order Form